

February 27

WIRING

Electrical code. Methods of wiring. Distribution systems. Conductors, circuits and their calculation. Economics of wiring. Design procedure. Specifications.

LECTURER: Mr. J. Chisvin

March 6

WIRING PROBLEMS

Student solutions of wiring problems.

LECTURER: Mr. J. Chisvin

March 13

LIGHTING ECONOMICS

Methods of cost analyses. Economic factors affecting lighting design. Effect of lighting systems on other services.

LECTURER: Mr. B. Quan

ILLUMINATION III—FALL TERM

October 12 and 19

COLOUR

Physical, physiological and psychological aspects of colour; colour mixing and colour harmony; systems of colour specification.

LECTURER: Prof. W. E. Carswell

October 26

PSYCHOLOGICAL FACTORS IN LIGHTING

Effects of colour and light on the human being.

LECTURER: Mr. R. G. Allison

November 2 and 9

LIGHT CALCULATIONS FOR LARGE SOURCES

Illumination problems related to extended surface sources—rectangular, line, etc.

LECTURER: Miss M. G. Currie

November 16 and 23

METHODS OF CALCULATING GLARE

A brief outline of glare studies and a review of methods of calculating visual comfort ratings. Problems to be included.

LECTURER: Mr. C. E. Davidson

November 30 and December 7

DESIGN OF LIGHTING ELEMENTS

Basic considerations in luminaire design; methods of light control, materials, temperature, etc. Design considerations of lighting elements forming an integral part of the building structure.

LECTURER: Mr. A. Birkhoff

December 14

PRESENTATION OF VISUAL INFORMATION

Effects of light, colour, shape, etc. on visual perception; recognition of signal lights, perceptual effects of street lighting, etc.

LECTURER: Dr. P. J. Foley



UNIVERSITY OF TORONTO
UNIVERSITY EXTENSION

Session 1961-62

Courses in

**ILLUMINATION I
ILLUMINATION II
and
ILLUMINATION III**

offered in co-operation with the
TORONTO SECTION
ILLUMINATING ENGINEERING SOCIETY

ILLUMINATION I, II AND III

Offered in co-operation with the Toronto Section of the Illuminating Engineering Society, these courses are designed to provide an educational background in the fundamental principles of illumination. It is *not* a technical training course.

These courses should be of interest to all people who are directly concerned with illumination design in their day to day work as well as consulting engineers, architects, lighting equipment manufacturers, distributors, salesmen and contractors.

There are no fixed entrance requirements but as the three courses are designed to follow a logical sequence of topics students would be well advised to start with Illumination I unless they feel they have covered the material in previous courses or through practical experience.

Because of the emphasis placed on open discussion, enrolment in each course is limited to 40.

COURSE DIRECTOR:

Miss M. G. Currie, B.A.Sc., P.Eng.,
Department of Applied Physics,
University of Toronto.

COMMITTEE MEMBERS:

Mr. E. J. Bartley,
Chairman, Education Committee of
Illuminating Engineering Society.

Miss M. G. Currie,
University of Toronto.

Mr. J. Ball,
Ball, Craig, Short & Strong.

Mr. C. Albini,
C.L.M. Industries.

Mr. S. W. McKnight,
Canadian Westinghouse Co.

Mr. A. C. Burnard,
Canadian General Electric Co.

TIME: 7.30 p.m.
Illumination I Beginning Oct. 10 to Dec. 12
Illumination II Beginning Jan. 9 to Mar. 13
Illumination III Beginning Oct. 12 to Dec. 14

PLACE: Room 25, Engineering Building.

FEE: \$20.00 each.

Registration:

By mail or in person at Room 207, 65 St. George Street. 9 a.m. to 5 p.m. daily, except Saturdays. Information may be obtained by telephoning WA. 8-6611, locals 301, 304, 526, 527. In order to accommodate students and enable them to enrol during the evening, registrations will be taken:

Monday, September 18th
Wednesday, September 20th
Monday, September 25th

from 7.30 to 9 p.m. in the Wallberg Building, corner of St. George and College Streets.

ILLUMINATION I—FALL TERM

October 10

NATURE AND PRODUCTION OF LIGHT

Radiation; wavelength, frequency, Electromagnetic spectrum; visual, infra-red, ultraviolet regions. Spectral energy distributions. Reception characteristics of photocells, human eye, etc. Production of light; incandescence, luminescence. Fluorescence and phosphorescence. Luminous flux.

LECTURER: Miss M. G. Currie

October 17

VISION—THE EYE

Structure of the eye. Mechanism of perception. Sensitivity to light intensity and colour; adaptation. Visual acuity, contrast sensitivity, persistence of vision. Elementary colour vision.

LECTURER: Dr. P. J. Foley

October 24

VISION—THE TASK

Visual performance; size, time, contrast, brightness background, shape of object, glare. Vision at low levels.

LECTURER: Dr. P. J. Foley

October 31

LIGHTING TERMS AND LAWS OF ILLUMINATION

Photometric concepts, units and definitions. Primary standards of light. Inverse Square Law and Lambert's Cosine Law; relation between flux, intensity, illumination and brightness.

LECTURER: Mr. G. E. Davidson

November 7 and 14

FLUX, ILLUMINATION AND BRIGHTNESS CALCULATIONS

Basic source distributions. Total flux. Polar diagram, isocandle diagram, equiflux. Point by point method, illumination protractor. Brightness calculations.

LECTURER: Professor V. L. Henderson

November 21

MEASUREMENTS

Visual photometers. Physical photometers. Laboratory and field instruments and measurements. Precautions and limitations.

LECTURER: Mr. G. E. Davidson

November 28

MEASUREMENTS LABORATORY

Student use of photometric equipment.

LECTURER: Mr. G. E. Davidson

December 5

CONTROL OF LIGHT

Reflection; Specular, diffuse and preferential. Refraction. Transmission and absorption. Polarization.

LECTURER: Mr. A. Birkhoff

December 12

LIGHT SOURCES

Filament lamps. Gaseous discharge lamps. Fluorescent lamps.

LECTURER: Mr. H. G. Jones

ILLUMINATION II—WINTER TERM

January 9

CIRCUITS AND CONTROLS FOR LIGHT SOURCES

Ballasts and power factor correction for gaseous discharge lamps. Dimmer controls.

LECTURER: Mr. H. F. Davidson

January 16

ILLUMINATION FOR SEEING—QUANTITY AND QUALITY

Quantity: Illumination versus task.

Quality: Clarity, colour, modelling, shadows.

LECTURER: Mr. H. F. Davidson

January 23

BASIC LIGHTING DESIGN

Selection of source. Source distribution. Selection of luminaire. Brightness and illumination considerations. Colour harmony.

LECTURER: Mr. H. F. Davidson

January 30

BASIC LIGHTING DESIGN

Review of lighting terms. Lumen method. Interference Method.

LECTURER: Miss M. G. Currie

February 6

DAYLIGHTING DESIGN PRINCIPLES

Variability of daylight. Fenestration. Sun Control. Orientation. Maintenance.

LECTURER: Miss M. G. Currie

February 13

BASIC LIGHTING DESIGN PROBLEMS

Student solution of problems involving basic lighting design principles.

LECTURER: Miss M. G. Currie

February 20

ARCHITECTURAL CO-ORDINATION

Integration of architectural and engineering principles in the design of a visual environment.

LECTURER: Mr. W. Fleury